

# The 2004 International Workshop on Pulmonary Functional Imaging at Penn

hosted by  
Department of Radiology and MMRRCC,  
University of Pennsylvania Health System  
*Philadelphia, Pennsylvania, USA*

*November 12-14, 2004*

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## Friday, November 12, 2004

7:00 – 8:00 a.m. Registration and Continental Breakfast

8:00 – 8:15 a.m. **Welcome and Introduction**  
*Rahim R. Rizi*

### **Special Lectures**

**Moderators:** *Warren Gefter , Masaru Ishii*

8:15 – 9:00 a.m. **Quantitative Measurements of Lung Parameters Using CT**  
*Eric Hoffman*  
*University of Iowa*

9:00 – 9:30 a.m. **Relating Pulmonary Function Tests to Lung Imaging – Part One**  
*Wayne Mitzner*  
*Johns Hopkins University*

9:30 – 10:00 a.m. **Relating Pulmonary Function Tests to Lung Imaging – Part Two**  
*Solbert Permutt*  
*Johns Hopkins University*

10:00 – 10:15 a.m. **Questions and Answers**

10:15 – 10:30 a.m. *Refreshment Break*

10:30 – 11:15 a.m. **Molecular Imaging of the Lungs**  
*Daniel Schuster*  
*Washington University*

11:15 – 11:45 p.m. **Historical Perspective of Polarized Helium**  
*William Happer*  
*Princeton University*

11:45 – 12:15 p.m.    **Quantification of Regional Gas Exchange with PET**  
*Jose Venegas*  
*Harvard University*

12:15 – 1:15 p.m.    *Lunch on your own*

### **COPD**

**Moderators:** *John Hansen-Flaschen, David Lipson*

1:15 – 1:45 p.m.    **Clinical Aspects of COPD**  
*John Hansen-Flaschen*  
*University of Pennsylvania*

1:45 – 2:15 p.m.    **A Thoracic Surgeon's Perspective on Functional Lung Imaging**  
*Joseph Shrager*  
*University of Pennsylvania*

2:15 – 2:45 p.m.    **A Pulmonologist's Perspective on Functional Lung Imaging**  
*David Lipson*  
*University of Pennsylvania*

2:45 – 3:15 p.m.    **Inflammation Imaging of the Lungs**  
*Daniel Schuster*  
*Washington University*

3:15 – 3:30 p.m.    ***Questions and Answers***

3:30 – 3:45 p.m.    *Refreshment Break*

3:45 – 4:30 p.m.    **Regional Ventilation and PAO<sub>2</sub> Measurements**  
*Martin Fischer*  
*University of Pennsylvania*

4:30 – 5:15 p.m.    **ADC: A New Method for the Early Detection of Emphysema**  
*Per Akesson, Ingrid Casselbrant*  
*Lund University*

5:15 – 5:45 p.m.    **Quantitative Analysis of COPD Using Computed Tomography**  
*Harvey O Coxson*  
*Vancouver General Hospital*

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## **Saturday, November 13, 2004**

7:15 – 8:00 a.m.    *Continental Breakfast*

## **Functional Lung Imaging I**

**Moderators:** *John Mugler , Dean Kuethe*

- 8:00 – 8:30 a.m.      **Overview of Techniques for MR Imaging of Hyperpolarized Gases**  
*John Mugler*  
*University of Virginia*
- 8:30 – 9:00 a.m.      **The Transition from  $^3\text{He}$  to  $^{129}\text{Xe}$  - Issues and Opportunities**  
*Bastiaan Driehuys*  
*Duke University Medical Center*
- 9:00 – 9:30 a.m.      **Production of Large Quantities of  $^{129}\text{Xe}$**   
*F. William Hersman*  
*University of New Hampshire*
- 9:30 – 9:45 a.m.      **Panel Discussion**
- 9:45– 10:00 a.m.      **Refreshment Break**
- 10:00– 10:30 a.m.      **Measurement of Regional Ventilation and Perfusion Ratio From Polarized  $^3\text{He}$**   
*Rahim Rizzi*  
*University of Pennsylvania*
- 10:30– 11:00 a.m.      **Assesment of Lung Function by SF6**  
*Dean Kuethe*  
*New Mexico Resonance*
- 11:00– 11:30 a.m.      **Production of Polarized Carbon-13 by DNP**  
*Stephen Kadlecsek*  
*University of Pennsylvania*
- 11:30– 12:00 a.m.      **Production of Polarized Carbon-13 by Parahydrogen**  
*Joachim Bargon*  
*University of Pennsylvania*
- 12:00– 12:15 p.m.      **Panel Discussion**
- 12:15– 1:15 p.m.      **Lunch on your own**

## **Functional Lung Imaging II**

**Moderators:** *Erik Hoffman, Rahim Rizzi*

- 1:15– 1:45 p.m.      **Early Detection of Emphysema by Polarized Gas MRI**  
*Mark Conradi*  
*Washington University*
- 1:45– 2:15 p.m.

**Assessment of Lung Perfusion from Polarized Gas MRI**

*Masaru Ishii  
Johns Hopkins University*

2:15– 2:45 p.m. **Regional Ventilation and Lung Mechanics by CT  
Methods**

*Brett Simon  
Johns Hopkins University*

2:45– 3:15 p.m. **Assessment of Cystic Fibrosis in Children Using Polarized  
Gas MRI**

*Edwin van Beek  
University of Sheffield*

3:15– 3:45 p.m. **Hyperpolarized Helium-3 MR Application in Pediatric  
Lung Disease**

*Talissa Altes  
University of Virginia*

3:45– 4:00 p.m. *Refreshment Break*

**Imaging of the Upper Airways**

**Moderator:** *Mitch Schnall*

4:00 – 4:30 p.m. **Imaging of the Paranasal Sinuses**

*James Zinreich  
Johns Hopkins University*

4:30 – 5:00 p.m. **Assessment of Paranasal Sinuses with Polarized Gas MRI**

*Masaru Ishii  
Johns Hopkins University*

5:00 – 5:30 p.m. **Upper Airways Dynamics**

*Raanan Arens  
Children's Hospital of Philadelphia*

5:30 – 6:00 p.m. **Image-based Computational Fluid Dynamics Modeling of  
the Upper Airway in Children with Obstructive Sleep**

**Apnea**  
*David M. Wootton  
Drexel University*

6:00 – 6:15 p.m. **Panel Discussion**

6:15 – 8:00 p.m. **Poster Session**

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**Sunday, November 14, 2004**

7:15 – 8:00 a.m. *Continental Breakfast*

## **Functional Lung Imaging III**

**Moderators:** *Jay Udupa, Jose Venegas*

- 8:00 – 8:30 a.m.      **Recent Development in Image Analysis: Potential Application for Lung Function**  
*Jay Udupa*  
*University of Pennsylvania*
- 8:30 – 9:00 a.m.      **Registration of CT Lung Volumes Using an Optical Flow Method**  
*Larry Dougherty*  
*University of Pennsylvania*
- 9:00 – 9:30 a.m.      **The Dilemma of the Solitary Pulmonary Nodule—Current Status and Future Directions**  
*Drew A. Torigian*  
*University of Pennsylvania*
- 9:30 – 9:45 a.m.      ***Panel Discussion***
- 9:45 – 10:00 a.m.      ***Refreshment Break***
- 10:00 – 10:30 a.m.      **Current Imaging Method for Pulmonary Embolism**  
*Warren Geftter*  
*University of Pennsylvania*
- 10:30 – 11:00 a.m.      **Lung Functional Correlates Polarized He Imaging in Murine Models of Asthma**  
*Angela Haczku*  
*University of Pennsylvania*
- 11:00 – 11:30 a.m.      **Quantitative Assessment of the Lungs by MIGET**  
*James Baumgardner*  
*University of Pennsylvania*
- 11:30 – 12:00 p.m.      **Generating Microaerosols**  
*Mike Bono*  
*AMICI*
- 12:00 – 1:00 p.m.      ***Lunch on your own***
- Conclusion**
- 1:00 – 2:00 p.m.      ***Panel Discussion***
- 2:00 – 2:15 p.m.      **Concluding Remarks** *Rahim Rizi and Warren Geftter*

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